

Exhibit 32



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(12) **United States Patent**
Gossweiler, III et al.

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(54) **LIGHTWEIGHT THREE-DIMENSIONAL DISPLAY**

(58) **Field of Classification Search** 345/418,
 345/419, 427, 473
 See application file for complete search history.

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(56) **References Cited**

U.S. PATENT DOCUMENTS

5,808,613 A * 9/1998 Marrin et al. 715/850
 (Continued)

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OTHER PUBLICATIONS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 910 days.

International Search Report & Written Opinion for Application No. PCT/US2009/037886, dated Oct. 27, 2009, 12 pages.

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(65) **Prior Publication Data**

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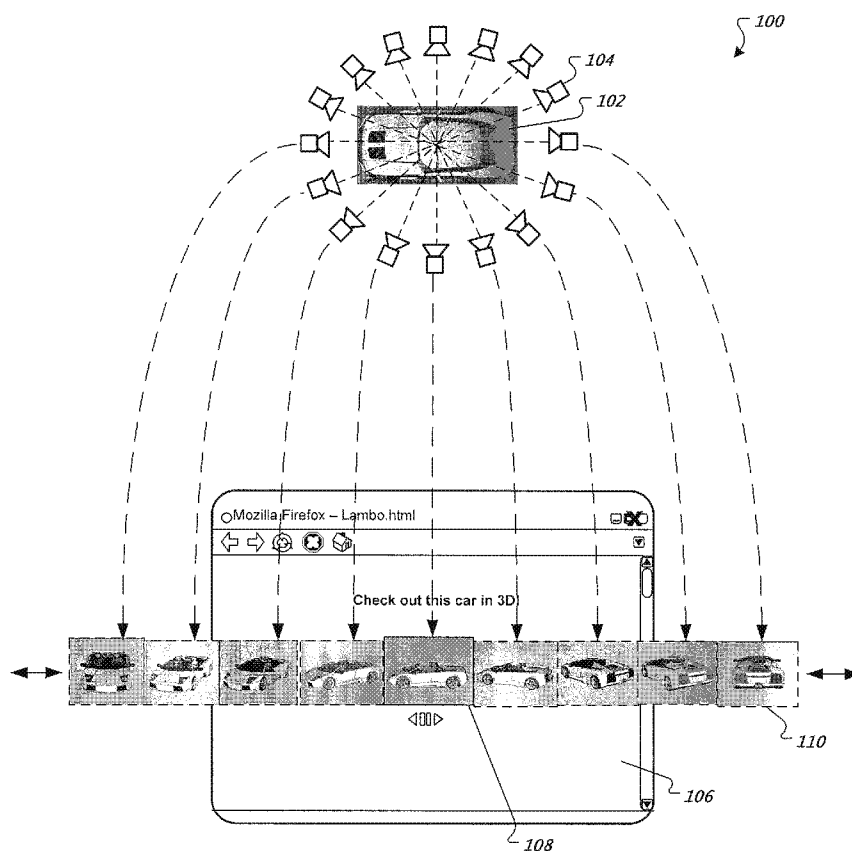
(51) **Int. Cl.**
G06T 15/00 (2011.01)
G06T 13/00 (2011.01)

(57) **ABSTRACT**

A computer-implemented imaging process method includes generating a progression of images of a three-dimensional model and saving the images at a determined location, generating mark-up code for displaying image manipulation controls and for permitting display of the progression of images in response to user interaction with the image manipulation controls, and providing the images and mark-up code for use by a third-party application.

(52) **U.S. Cl.** 345/419; 345/473

20 Claims, 12 Drawing Sheets



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U.S. PATENT DOCUMENTS

| | | | | | | | |
|----------------|--------|---------------------------|---------|-------------------|--------|--------------------|---------|
| 6,346,938 B1 * | 2/2002 | Chan et al. | 345/419 | 2002/0010655 A1 * | 1/2002 | Kjallstrom | 705/27 |
| 6,535,226 B1 * | 3/2003 | Sorokin et al. | 715/723 | 2003/0014442 A1 | 1/2003 | Shigi et al. | |
| 6,931,604 B2 * | 8/2005 | Lane | 715/853 | 2003/0031380 A1 * | 2/2003 | Song | 382/284 |
| 6,983,064 B2 * | 1/2006 | Song | 382/131 | 2006/0114251 A1 * | 6/2006 | Miller | 345/419 |
| 7,080,325 B2 * | 7/2006 | Treibach-Heck et al. | 715/780 | 2007/0211149 A1 | 9/2007 | Burtnyk et al. | |
| 7,523,392 B2 * | 4/2009 | Dunietz et al. | 715/234 | 2008/0016145 A1 * | 1/2008 | Takase et al. | 709/203 |

* cited by examiner